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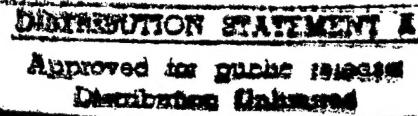
AFOSR/NM

University of Texas at El Paso
Department of Geological Sciences
Final Technical Report
Grant Number F49620-93-1-0580

Instrumentation for Seismic Data Acquisition and Analysis

Principal Investigators: G. Randy Keller, Diane I. Doser, Kate C. Miller

SUMMARY



This grant was targeted at the acquisition of seismic instrumentation to aid the University of Texas at El Paso (UTEP) geophysics group's efforts which involve conducting a wide variety of geo-physical studies in the southwestern U. S. The objectives of these studies are to investigate lithospheric structure and seismic wave propagation in the area. The equipment described in the proposal has all been purchased and delivered and has already been put to use. Specifically, we purchased 10 REFTEK portable seismic recording units with GPS clocks, 3 broad-band seismometers, and a SUN workstation with and external disk drive. With this equipment, we are beginning a project in cooperation with the Phillips Laboratory to monitor earthquakes from teleseismic distances on the Colorado Plateau. Also, we employed our new equipment in a just completed major field effort, the Delta Force experiment, where a series of long profiles emanating from near NTS were recorded in May of 1994. One of these profiles lies along the NTS-WSMR transect, one of our ongoing efforts, and others tie to recent experiments in the region (PACE, BARGE, NPE/SSCD). Thanks to the cooperation of the National Science Foundation, Cal Tech was able to obtain funding to enhance this experiment with another shotpoint. The end result of these efforts is a series of interlocking seismic profiles which should greatly enhance our knowledge of lithospheric structure and wave propagation in the NTS region. A brief description of the Delta Force experiment follows.

PUBLICATIONS

We have not had time to produce publications from data specifically gathered using our new equipment. However, our data collection efforts have been very successful and we will be presenting a paper on our Delta Force experiment at the Fall meeting of the American Geophysical Union.

PERSONNEL

The Principal Investigators on this project are G. Randy Keller, Diane I. Dose, and Kate C. Miller. In addition, the following students have been involved substantially in this use of our new equipment: Donald Roberts, Carlos Montana, Fiona Kilbride, Allison Bruce, Julia Whitelaw, and Alejandro Duran.

INTERACTIONS

Our group has maintained an active interaction with the geophysical community in regard to our projects and new equipment. As promised in our proposal, we have shared this equipment with the seismological community. Specifically, it was a big help in two experiments which were conducted in California this year. We presented papers at the annual Seismic Research Symposium, a symposium on the Non-Proliferation Experiment, and the Fall meeting of the American Geophysical Union. Our Delta Force experiment received considerable attention from other groups who recorded our sources.

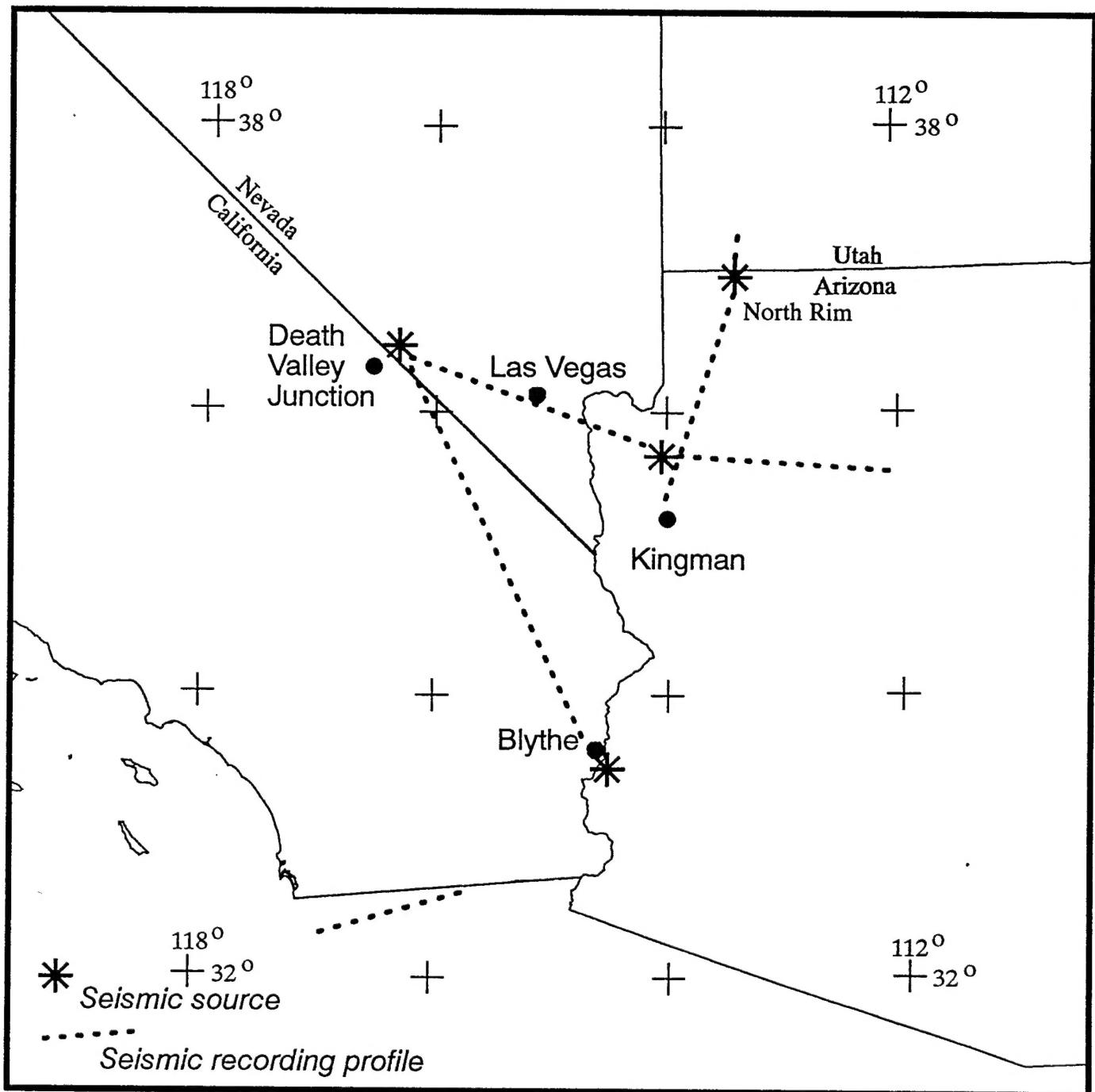


Figure 1: Index map of the Delta Force experiment. Seismic sources are shown as well as the profiles along which the seismic recorders were deployed..